Disable DMA for pixel transfers

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Symptom(s):

Disable DMA for pixel transfers

Fact(s):

Silicon Graphics Octane2
Silicon Graphics Tezro
VPro, V6,V8, V10 and V12
Odyssey Graphics
SGI Onyx350 InfinitePerformance

SGI Solution:

There are 3 ways to control DMA on the VPro which might help avoid any DMA related crashes :

1. GL_ODY_DMA_DRAW_PIXELS_THRESHOLD

sets the threshold above which DMA is considered a performance win over PIO transfer.

Set to # of pixels. In this case it should be set as large as possible so that the driver will always use PIO transfers.
Set this variable in the shell or script which starts the application, or programmatically using putenv() :

```
setenv GL_ODY_DMA_DRAW_PIXELS_THRESHOLD 2147483648
```

or

```
// set DMA/PIO threshold
putenv("GL_ODY_DMA_DRAW_PIXELS_THRESHOLD=2147483648");
```

2. GL_ODY_ENABLE_DIRECT_DMA

allows, or disallows DMA directly to on-board SDRAM (rather than through the board's DMA engine).
Set to n to disable this feature in the shell that starts the application, or set programmatically using putenv() :

```
setenv GL_ODY_ENABLE_DIRECT_DMA n
```

or

```
// disable direct to SDRAM DMAs
putenv("GL_ODY_ENABLE_DIRECT_DMA=n");
```

3. ODSY_DMA_THRESHOLD

This environment variable controls the threshold at which DMA is considered a performance win over PIO for X server image transfers (background bitmap, and any other rectangular transfers). This variable needs to be added to /usr/bin/X11/X (a shell script) just after the initial comments :-

```
% cat /usr/bin/X11/X
#! /bin/sh
#
#  /usr/bin/X11/X
#  initialize graphics device and start X Window System
#  $Revision: 1.22 $
#

# Add the next two lines to force PIO only image transfers
ODSY_DMA_THRESHOLD=2147483648
export ODSY_DMA_THRESHOLD
```

Additional Details

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